

IN THE CLAIMS

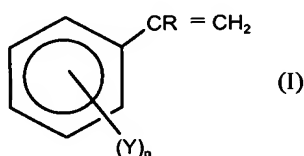
Please amend the claims as follows:

Claim 1 (Original) Expandable vinylaromatic polymers which comprise:

- a) a matrix obtained by polymerizing 50-100% by weight of one or more vinylaromatic monomers and 0-50% by weight of a copolymerizable monomer;
- b) 1-10% by weight, calculated with respect to the polymer (a), of an expanding agent englobed in the polymeric matrix;;
- c) 0.01-20% by weight, calculated with respect to the polymer (a), of carbon black homogeneously distributed in the polymeric matrix having an average diameter ranging from 30 to 2000 nm, a surface area ranging from 5 to 40 m²/g, a sulfur content ranging from 0.1 to 2000 ppm and an ash content ranging from 0.001 to 1%.

Claim 2 (Original): The polymers according to claim 1, wherein the carbon black is characterized by a weight loss with heat ranging from 0.001 to 1%, an iodine number ranging from 0.001 to 20 g/kg and an absorption value of dibutylphthalate (DBPA) ranging from 5 to 100 ml/(100 g).

Claim 3 (Currently Amended): The polymers according to claim 1, wherein the vinylaromatic monomer is selected from those corresponding to the following general formula:



wherein R is a hydrogen or a methyl group, n is zero or an integer ranging from 1 to 5 and Y is a halogen, ~~such as chlorine or bromine~~, or an alkyl or alkoxy radical having from 1 to 4 carbon atoms.

Claim 4 (Currently Amended): The polymers according to claim ~~1, 2 or~~ 3, wherein the vinylaromatic monomers having general formula (I) are used in a mixture, of up to 50% by weight, with other copolymerizable monomers selected from the group consisting of (meth)acrylic acid, C₁-C₄ alkyl esters of (meth) acrylic acid, amides ~~and nitriles~~ of (meth) acrylic acid, nitriles of (meth)acrylic acid, butadiene, ethylene, divinylbenzene, and maleic anhydride.

Claim 5 (Original): The polymers according to claim 4, wherein the copolymerizable monomers are acrylonitrile and methylmethacrylate.

Claim 6 (Currently Amended): The polymers according to ~~any of the previous~~ ~~claims~~ claim 1, wherein the carbon black ~~filler~~ has an average diameter ranging from 100 to 1000 nm, a surface area ranging from 8 to 20 m²/g, (measured according to ASTM D-6556), a sulfur content ranging from 1 to 500 ppm, an ash residue ranging from 0.01 to 0.3% (measured according to ASTM D-1506), a weight loss with heat (measured according to ASTM D-1509) ranging from 0.01 to 0.5%, a DBPA (measured according to ASTM D-2414) of 20-80 ml/(100 g) and an iodine number (measured according to ASTM D-1510) ranging from 0.1 to 10 g/kg.

Claim 7 (Currently Amended): The polymers according to ~~any of the previous~~ ~~claims~~ claim 1, wherein the carbon black ~~filler~~ is used in a quantity ranging from 0.1 to 5% by weight, with respect to the polymer.

Claim 8 (Currently Amended): Expandable articles ~~which can be obtained with~~ comprising the expandable vinylaromatic polymers according to claim 1 ~~any of the previous~~ ~~claims~~, having a density ranging from 5 to 50 g/l and a thermal conductivity ranging from 25 to 50 mW/mK, generally even over 10% lower than that of equivalent- expanded materials without carbon black.

Claim 9 (Currently Amended): A process for the preparation of expandable vinylaromatic polymers which comprises polymerizing in aqueous suspension one or more vinylaromatic monomers, optionally together with at least one polymerizable comonomer in a quantity of up to 50% by weight, in the presence of a carbon black having an average diameter ranging from 30 to 2000 nm, a surface area ranging from 5 to 40 m²/g, a sulfur content ranging from 0.1 to 2000 ppm and an ash content ranging from 0.001 to 1%, and in the presence of a peroxide radicalic initiator, optionally containing at least one aromatic ring, and ~~an~~ at least one expansion agent added before, during or at the end of the polymerization.

Claim 10 (Original): The process according to claim 9, wherein the carbon black is characterized by a weight loss with heat ranging from 0.001 to 1%, an iodine number ranging from 0.001 to 20 g/kg and a DBPA value ranging from 5 to 100 ml/(100 g).

Claim 11 (Currently Amended): The process according to claim 9 ~~or 10~~, wherein the polymerization is carried out in the presence of suspending agents of both the organic and inorganic type.

Claim 12 (Original): The process according to claim 11, wherein the inorganic suspending agents are coadjuvated by anionic surface-active agents or sodium metadisulfite.

Claim 13 (Currently Amended): The process according to ~~any of the claims from 9 to 12~~ claim 9, wherein the polymerization in suspension is effected through a solution of vinylaromatic polymer in the monomer, or mixture of monomers, in which the concentration of polymer ranges from 1 to 30% by weight.

Claim 14 (Currently Amended): The process according to ~~any of the claims from 9 to 13~~ claim 9, wherein, at the end of the polymerization beads of polymer are obtained in a substantially spherical form, with an average diameter ranging from 0.2 to 2 mm inside which the carbon black filler is homogeneously dispersed.

Claim 15 (Currently Amended): The process according to ~~any of the claims from 9 to 14~~ claim 14, wherein the polymer beads obtained at the end of the polymerization are washed with non-ionic surface-active agents.

Claim 16 (Currently Amended): The process according to ~~any of the claims from 9 to 15~~ claim 9, wherein during ~~[[a]]~~ at least one polymerization flame-retardant agent ~~agents~~ are ~~is~~ added in a quantity ranging from 0.1 to 8% by weight, with respect to the weight of the resulting polymer.

Claim 17 (Currently Amended): The process according to ~~any of the claims from 9 to 16~~ claim 9, wherein the ~~expansion agents~~ at least one expansion agent is ~~are~~ added during the polymerization phase and ~~are~~ is selected from the group consisting of aliphatic hydrocarbons comprising 3 to 6 carbon atoms, or cycloaliphatic hydrocarbons containing comprising from 3 to 6 carbon atoms[[:]], halogenated derivates of aliphatic hydrocarbons ~~containing~~ comprising from 1 to 3 carbon atoms[[:]] , carbon dioxide and water.

Claim 18 (Currently Amended): A process for preparing, in mass and ~~in continuous~~ continuously, expandable vinylaromatic polymers which comprises the following steps in series:

- i. feeding a vinylaromatic polymer, as described above, to an extruder, together with a carbon black filler, having an average diameter ranging from 30 to 2000 nm, a surface area ranging from 5 to 40 m²/g, a sulfur content ranging from 0.1 to 2000 ppm and an ash residue ranging from 0.001 to 1%;
- ii. heating the vinylaromatic polymer to a temperature higher than the relative melting point;
- iii. injecting the expanding agent and possible additives such as flame-retardant agents, into the molten polymer before extrusion through a die; and
- iv. forming expandable beads, through a die, in a substantially spherical form with an average diameter ranging from 0.2 to 2 mm.

Claim 19 (Currently Amended): The process according to claim 18, wherein the carbon black filler is characterized by a weight loss with heat ranging from 0.001 to 1%, an iodine number ranging from 0.001 to 20 g/kg and a DBPA value ranging from 5 to 100 ml/(100 g).

Claim 20 (Currently Amended): The process according to ~~any of the claims from 9 to 19~~ claim 18, wherein the expandable beads produced are pre-treated using methods generally applied to beads produced with conventional processes which comprise essentially consist in:

a) coating the beads with a liquid antistatic agent ~~such as amines, tertiary ethoxylated alkylamines, ethylene oxide-propylene oxide copolymers;~~

b) applying the coating to the beads thus treated, said coating essentially consisting of a mixture of mono-, di- and tri-esters of glycerin with fatty acids and of metallic stearates such as zinc stearate, ~~and/or~~ magnesium stearate, or a combination thereof;

wherein, the liquid antistatic agent is selected from the group consisting of amines, tertiary ethoxylated alkylamines, ethylene oxide, and propylene oxide copolymers.

Claim 21 (Currently Amended): The process according to ~~any of the claims from 9 to 20~~ claim 20, wherein the carbon black filler is also added to the coating together with the mixture of esters.